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THE *NEMOMYDAS* OF SOUTHWESTERN UNITED STATES, MEXICO, AND CENTRAL AMERICA (DIPTERA: MYDIDAE)

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Abstract.—The species of *Nemomydas* Curran occurring in the southwestern United States, Mexico, and Central America are reviewed. Thirteen species are recognized, including two new species, **N. fronki** n. sp. and **N. wendyae** n. sp. The males of *N. brachyrhynchus* (Osten Sacken) and *N. sponsor* (Osten Sacken) are described for the first time, *N. fumosus* Hardy is elevated to a full species, and *N. panamensis* (Curran) is considered a *nomen dubium*. A key to the males is provided.

Key Words: *Nemomydas* key, new species

Nemomydas Curran is a distinctive genus of mydas flies found in North and Central America, and contains a number of geographically restricted species. Hardy (1950) revised the North American species, and Steyskal (1956) reviewed the species in the eastern United States. However, our knowledge of the Mexican and Central American species is poor. Recent collections from Mexico, Guatemala, southwestern United States, as well as the examination of type specimens, has made it possible to review the fauna of this area and clarify the taxonomic status of several regional species.

Papavero and Wilcox (1968) transferred *Mydas senilis* Westwood to *Nemomydas*. Our examination of the male holotype of this species indicate it as a true *Mydas* as defined by Wilcox and Papavero (1971), and a member of the *interruptus* group (Welch and Kondratieff 1990). We also examined the types of *N. desideratus* (Johnson) (MCZ #7592) and *N. jonesii* (Johnson) (MCZ #7593) as well as available specimens of *N. lara* Steyskal and *N. melanopogon* Steyskal. These four species are restricted to the southeastern United States, especially Florida. *Nemomydas lara*, originally described from females, is probably the female of *N. melanopogon*, a species known only from males.

Specimens for this study were provided by the following institutions: British Museum (Natural History) (BMNH); California Academy of Sciences (CAS); Canadian National Collection (CNC); Colorado State University (CSU); Florida State Collection of Arthropods (FSCA); Michigan State University (MSU); Museum National D'Histoire Naturelle, Paris (MNHN); Museum of Comparative Zoology, Harvard (MCZ); San Diego Natural History Museum (SDNHM); University of Arizona (UA); University of California, Berkeley (UCB); University of Colorado (UC); University of Kansas (UK); and the United States National Museum of Natural History (USNM).

Methods of preparation, and terminology of the male genitalia, follow Wilcox and Papavero (1971) and Wilcox (1981). This study illustrates, for the first time, the male terminalia of all species known from this region. The females of *N. bifidus* Hardy, *N. solitarius* (Johnson), and *N. tenuipes* (Loew)

are unknown, therefore no key is presented for the females. We follow Snelling's (1987) political designations for Lower California.

Key to the Males of *Nemomydas* of Western North America and Central America

1. Aedeagus in lateral view, enlarged or expanded (Figs. 2–5) 2
– Distal section of aedeagus tube-like and elongate in lateral view (Figs. 1, 6–13) 6
2. Distal section of aedeagus abruptly expanded and recurved medially in lateral view (Figs. 2, 4) 3
– Aedeagus swollen, tapering apically in lateral view (Figs. 1, 3, 5) 4
3. Abdominal tergites yellowish brown (in some specimens, tergites shaded with brownish black); terminalia as Fig. 2. Distribution: southwestern United States (Arizona) and northern Mexico (Sonora) ..... *brachyrhynchus* (Osten Sacken)
– Abdominal tergites black with posterior margins of tergites 2–6 yellow; terminalia as Fig. 4. Distribution: Guatemala and Costa Rica ..... *sponsor* (Osten Sacken)
4. Abdominal tergites black, posterior margins of 1–6 or 1–7 yellow 5
– Abdominal tergites yellow brown with middorsal blackish brown spots or dashes; terminalia as Fig. 1. Distribution: Honduras ..... *bequaerti* (Johnson)
5. Aedeagus in lateral view tongue-like, constricted medially (Fig. 3). Distribution: Costa Rica ..... *lamia* (Séguy)
– Aedeagus in lateral view broad basally, tapering apically with small flange anteroapically (Fig. 5). Distribution: Mexico ..... *wendyae* n. sp.
6. Tergites entirely black or reddish black 7
– Tergites reddish, yellow, yellowish brown or dark and distinctly marked with white or yellow 8
7. Dorsal digitate process of gonocoxite in lateral view, small originating from inner surface of ventral digitate process (Fig. 6); body and legs entirely black, covered by long black setae. Distribution: Texas ..... *fronki* n. sp.
– Dorsal digitate process of gonocoxite in lateral view, large originating at base of ventral digitate process (Fig. 7); thorax, tergite 1 or 2 with yellow or white setae. Distribution: California, Mexico (Baja California) ..... *tenuipes* (Loew)
8. Tergites brownish black or black marked with yellow or white 9
– Tergites reddish yellow, yellow or yellowish brown 10
9. Tergites 1–7 black or brownish black with transverse yellow margins posteriorly; basal portions of hind femur and tibia yellow; terminalia as in Fig. 13 ..... *venosus* (Loew)
– Tergites brownish black, tergites 3–5 with triangular, whitish spots laterally; basal portions of hind femur and tibia blackish brown; terminalia as Fig. 11 ..... *fumosus* Hardy
10. Dorsal digitate process of gonocoxite, in lateral view, small, originating from inner surface of ventral digitate process (Fig. 12). Distribution: Colorado ..... *solitarius* (Johnson)
– Dorsal digitate process of gonocoxite, in lateral view, originating at base of ventral digitate process (Figs. 8, 9). Distribution: British Columbia south to Mexico (Baja California) 11
11. Proboscis short, 0.8–0.9 times as long as subcranial cavity ..... *pantherinus* (Gerstaecker)
– Proboscis long, 1.3 times as long as subcranial cavity 12
12. Abdominal tergites and legs with dense yellow to white setae ..... *intonsus* Hardy
– Abdominal tergites and legs with black setae ..... *bifidus* Hardy

Nemomydas bequaerti (Johnson)
Figs. 1, 14

Leptomydas bequaerti Johnson, 1926: 144. Type locality: Honduras, Depto. Colon, Puerto Castilla. Holotype male (MCZ #7594), examined.

Nemomydas bequaerti, Papavero and Wilcox, 1968: 34.10.

Johnson (1926) provided an adequate description of both sexes of this species. In his key, Johnson stated that *N. bequaerti* has cell r_5 open; however, our examination of all material available, including the holotype male, showed that this cell is closed. The following may be added to the original description of the male: proboscis short, 0.6 times as long as subcranial cavity; tergite 1 with long erect whitish setae; and tergites 2–7 with recumbent, short, black setae.

The extent of the middorsal blackish brown dashes or spots on abdominal tergites is variable. The holotype and 1 additional specimen have these marks on ter-

gites 2–7, whereas another specimen has these marks only on tergites 2–3.

Nemomydas bequaerti may be easily separated from all others in this study (Central American *Nemomydas*) by the short stubby aedeagus (Fig. 1), and tergites 2–7 yellow-brown with middorsal blackish brown dashes or spots. The female of *N. bequaerti* is very similar to the female of *N. brachyrhynchus* Osten Sacken, but may be distinguished by the more elongate second flagellomere (Fig. 14), and apparent geographical distribution (Honduras). The female of *N. brachyrhynchus* has an expanded second flagellomere (Fig. 15) and is known from northern Mexico (Sonora) to southern Arizona.

Material examined.—HONDURAS: Holotype male as noted above; paratype male, same data except 28 III 1924 (MCZ); Puerto Castilla, 2 IV 1926, R. H. Painter, 2 males, 1 female (CAS); same data 1 male, 1 female (CNC); same data but 26 III 1924, 1 male, 1 female (BMNH).

Nemomydas brachyrhynchus (Osten Sacken)

Figs. 2, 15

Leptomidas brachyrhynchus Osten Sacken, 1886: 69. Type locality: (Northern) Sonora, Mexico. Holotype female (BMNH), examined.

Leptomydas brachyrhynchus, Johnson, 1926: 142.

Nemomydas brachyrhynchus, Hardy, 1950: 25.

Nemomydas brachyrhynchus, Papavero and Wilcox, 1968: 34.10.

Male.—Length 12–19 mm. Head shiny black, setae erect, golden yellow to white; antenna 3.2 mm long, reddish black, tinted with orange, especially apically; proboscis short, 0.8 times long as subcranial cavity, reddish brown. Scutum reddish brown to reddish black, 3 broad brownish black stripes slightly converging posteriorly; scutellum shiny brown; posterior portion of postnotum blackish brown; wing hyaline, membrane around longitudinal veins tinted with brown; halter yellow; legs yellowish brown, except coxa and trochanters shiny brown, distal portion of hind femur and tibia brownish black, tarsus tinted with brown, setae on distal portion of hind femur and hind tibia black, others yellow. Abdominal tergites usually yellowish brown, in some specimens shaded with brownish black, pleural margins blackish brown; bulla black, setae long, erect and whitish to yellow on tergite 1, short, recumbent and black on tergites 2–7; sternites yellowish brown, darker posteriorly.

Terminalia.—Yellowish-brown, gonocoxite tinted with blackish-brown; dorsal digitate process of gonocoxite slender, curving inward; aedeagus in lateral view, apically expanded (Fig. 2).

This is the first description of the male. Hardy (1950) suggested that *N. brachyrhynchus* was a possible synonym of *N. pantherinus*. The association of the male with the female clearly indicates that this species is distinct. Males of *N. brachyrhynchus* can be easily distinguished from all other *Nemomydas* by the combination of aedeagus with an enlarged apical section, (Fig. 2) and usually with yellowish brown abdomen. Several specimens from Sonora, Mexico, and Arizona have tergites shaded with brownish black. The aedeagus of *N. sponsor* (Fig. 4) is similar to that of *N. brachyrhynchus* but the male of *N. sponsor* has a black abdomen with yellow posterior margins on tergites 2–6. The female of *N. brachyrhynchus* is similar to the females of *N. bequaerti*, *N. pantherinus* (Gerstaecker) and the light phase of *N. venosus* (Loew). However, *N. brachyrhynchus* is readily distinguished from *N. pantherinus* by the following features: (1) lacking long dense postocular setae (*N. pantherinus* has long dense postocular setae); (2) lacking dense lateral scutal setal fringe (*N. pantherinus* has a dense fringe of long yellow to white setae); and (3) abdominal tergites without brown transverse bands

(*N. pantherinus* females have brown anterior transverse bands on tergites 2–5). The light phase of *N. venosus* also lacks the dense, long postocular setae, and the dense lateral scutal setal fringe, but has abdominal tergites 2–4 or 2–7 with brown anterior transverse bands. Characters for separation of the female of *N. brachyrhynchus* from *N. bequaerti* are given in the discussion of the latter species.

Material examined.—MEXICO: Sonora, holotype female (BMNH); 7 mi. S. Alamos, Rio Cuchajachi, 20 March 1985, L. Stange and R. Miller, 2 males (FSCA); ARIZONA: Cochise Co., 2 mi. NE of Portal, 30 V 1962, J. Wilcox, 1 female (CAS); Pima Co., Madrona Ranger. Sta., W. Rincon Mts., 15 V 1964, at mud and water, M.L. Noller, J. C. Bequaert, H. Eltom, M. Nurein, F. G. Werner, 1 female (UA); Sabino Canyon, 26 V 1962, F. D. Parker and L. A. Stange, 2 males (CAS); same data except 8 V 1961, Sharp, 1 male; Santa Catalina Mtns., 9 V 1950, J. Markley, 1 female (UA); same data except 30 IV 1955, F. G. Werner, 1 female (CAS); same data except 30 IV 1955, F. G. Werner, 1 male (UA); same data except 1 V 1956, G. D. Butler, 1 male (UA); same data except 13 V 1960, Halberg, 1 female (UA); same data except 5 V 1961, B. Bryce, 1 male (UA); same data except 8 V 1961, R. Band, 1 male (UA); same data except Wargo, 1 male (UA); same data except 8 V 1961, C. Jackson, 1 female (UA); same data except 11 V 1962, Huiscir, 1 female (UA); same data except 13–14 V 1962, E. Stout, 1 male, 1 female (UA); same data except 6 V 1966, B. L. O., 1 female (UA); same data except 6 V 1966, G. Roux, 1 male (UA); same data except 9 V 1966, Donald, 1 male (UA); same data except Molino Basin, 12 V 1980, C. Olson, MacLachlan, 1 male (UA); Tucson, 21 IV 1957, Witman, 1 female (UA); same data except 6 V 1962, D. Parks, 1 male (UA); Santa Cruz Co., Madera Canyon, 17–21 V 1971, J. Wilcox, 2 males, 2 females (CAS); Bear Canyon, 12 V 1961, E. M. Painter, 1 male (CAS); Santa Rita Mtns., VIII 1977, C. A. Olson, 1 female (UA).

Nemomydas lamia (Séguy)
Fig. 3

Nomoneura lamia Séguy, 1928: 146. Type locality: La Caja, Costa Rica. Lectotype male (here designated and so labelled, MNHN), examined.

Nemomydas lamia, Papavero and Wilcox, 1968: 34.11.

Male.—Length 13 mm. Head shiny black, setae erect, whitish; orbital margin of compound eye whitish; antenna 3.2 mm long, brown, tinted reddish brown and gray pollinose apically; proboscis long, 2.3 times as long as subcranial cavity, black. Scutum black, with pair of submedian yellowish pollinose stripes converging posteriorly, a pair of lateral yellowish pollinose stripes, setae whitish, sparse, erect; postnotum with lateral yellowish white areas; wings hyaline, longitudinal veins brown; halter brown; foreleg and midleg brown, setae whitish, hindleg brown with basal portion of femur yellowish, setae whitish dorsally, black ventrally on femur, spines reddish brown; tibia brown. Abdominal tergites shiny black, posterior margins on tergites 1–7 yellow, bulla black, setae long and erect, whitish on tergites 1–2, short and whitish on 3–7; sternites shiny black, setae long, whitish and erect.

Terminalia.—Reddish-brown; ventral digitate process of gonocoxite thickened, thumb-like; dorsal digitate process slender, curved inward; aedeagus in lateral view tongue-shaped, constricted medially; in ventral view tapering apically (Fig. 3).

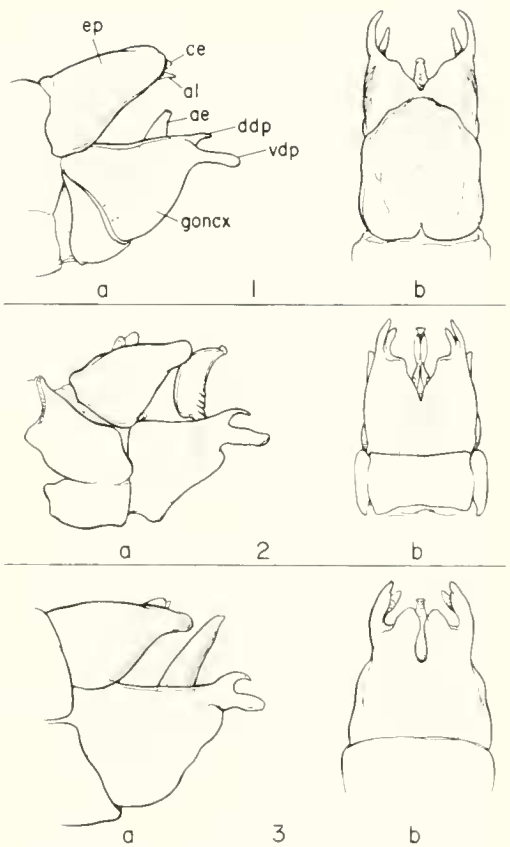
Female.—Length 15–18 mm. General coloration and structure similar to males except posterior margins on tergites 1–4 or 5 yellow.

Material examined.—COSTA RICA: La Caja, Paul Serre, 1920, Lectotype male designated (marked with blue margined lecto-

type label); 6 female paralectotypes, same label data as lectotype (MNHN).

Remarks.—Séguy (1928) did not designate a holotype. The syntypes of *N. lamia* sent to us by D. Baylac (Museum National D'Histoire Naturelle) consisted of a male marked with a red type label and a label "*Nemoneura lamia* Seguy, type," (considered here as the lectotype), a female marked also as "type," another male and 6 females. These 8 specimens have similar Costa Rica locality labels and determination labels of N. Papavero (in 1970). The second male syntype is identical to the male of *N. sponsor* and included under that species. The 6 females are all considered to be *N. lamia*. The male of *N. lamia* can be distinguished from the closely related *N. wendyae* and *N. sponsor* by the distinctive aedeagus (Fig. 3) and the whitish setae of the head.

The females of *N. lamia*, *N. sponsor*, and *N. wendyae* are very similar. *Nemomydas lamia* has blackish brown abdominal tergites, with tergites 1–4 or 5 with yellow posterior transverse margins. Both *N. sponsor* and *N. wendyae* have tergites 5–7 reddish brown.



Figs. 1–3. 1. *Nemomydas bequaerti*. Male terminalia, a. lateral, b. ventral. Abbrev.: ae, aedeagus; al, anal lamellae, ce, cercus; ddp, dorsal digitate process; ep, epandrium; goncx, gonocoxite; vdp, ventral digitate process. 2. *Nemomydas brachyrhynchus*. Male terminalia, a. lateral, b. ventral. 3. *Nemomydas lamia*. Male terminalia, a. lateral, b. ventral.

Nemomydas sponsor
(Osten Sacken)
Fig. 4

Leptomydas sponsor Osten Sacken, 1886: 68. Type locality: San Geronimo, Guatemala. Holotype female (BMNH), examined.

Male.—Length 14 mm. Head shiny black, setae erect, black to reddish brown; orbital margin of compound eye whitish; antenna 3.1 mm long, black, tinted with brown; proboscis long, 1.8 times as long as subcranial cavity, black. Scutum black, with pair of submedian gray white pollinose stripes converging posteriorly, a pair of lateral gray white pollinose stripes; anterior portion of scutellum gray white pollinose, posteriorly shiny black, setae whitish, sparse, erect; postnotum with lateral gray white areas; wings hyaline except membrane around longitudinal veins tinted with brown; halter black; foreleg and midleg black, setae yellowish, hindleg black with basal portion of femur yellowish, setae black ventrally on femur, spines reddish brown; tibia reddish black. Abdominal tergites shiny black, posterior margins of tergites 1–6 yellow, brown on tergite 8, bulla black, setae long and erect, whitish on tergites 1–2, short and black on 3–7; sternites shiny black, setae long, whitish and erect.

Terminalia.—Reddish brown, dorsal and ventral digitate processes of gonocoxite elongate; aedeagus constricted medially, expanded and recurved apically (Fig. 4).

Material examined.—COSTA RICA: 1 male (MNHN); GUATEMALA: Depto. Guatemala, Tacaton, Lago Amatitlan, near Villa Canales, 10 I 1989, B. C. Kondratieff, 1 male, 2 females (CSU); Holotype female, S. Geronimo, Champion (BMNH).

Remarks.—The male is described here for the first time. Osten Sacken (1886) presented an excellent descriptions of the female of this species. The male of *N. sponsor* resembles *N. lamia, N. wendyae* and *N. venosus* but may be immediately distinguished by the form of the aedeagus (Fig. 4).

The female is very similar to *N. wendyae* but can be separated by the distal flagellomeres being reddish brown and brown setae of face, whereas the female of *N. wendyae* has the antennae distally blackish-brown and white facial setae.

Nemomydas wendyae, New Species
Fig. 5

Male.—Length 13.5 mm. Head shiny black, setae erect, black; orbital margin of compound eye whitish; antennae 3.9 mm long, scape and pedicel black, flagellomere 1 and 2 brownish red, 3 and 4 black, tip of 4th silvery pollinose; proboscis long, 2.2 times as long as subcranial cavity, black. Scutum black, with pair of submedian gray white pollinose stripes converging posteriorly, a pair of lateral gray white pollinose stripes; anterior portion of scutellum gray white pollinose, posteriorly shiny black, setae whitish, sparse, erect; postnotum with lateral gray white areas; wings hyaline, longitudinal veins brown; halter black; foreleg and midleg blackish brown, setae mainly black, hindleg black with basal half of femur yellowish with whitish setae, distally setae black, spines reddish-brown; tibia basally yellowish, distally blackish-brown, setae black, tarsi black. Abdominal tergites shiny black, posterior margins on tergites 1–6 yellow, brown on tergite 8, bulla black, setae long and erect, whitish on tergites 1–2, short and black on 3–7; sternites shiny black, setae long, whitish and erect.

Terminalia.—Reddish-brown, dorsal digitate of gonocoxite tapered, apically acute, directed inward; aedeagus broad basally, wedge shaped, with small flange apically (Fig. 5).

Female.—Length 15.0–15.5 mm. Coloration and structure similar to male except abdominal tergites 4–7 and terminalia orange-brown, tergites 1–4 with yellow posterior transverse margins.

Material examined.—Holotype male, MEXICO: Acapulco, Guerrero, 17 IX 1941, Joseph D. Reed; paratypes, 2 females, same data as holotype. The holotype and paratypes will be returned to the University of Colorado Museum, Boulder.

Etyomology.—We take great pleasure in naming this species for Wendy Meyer, Colorado State University, whose knowledge of entomology is inspiring.

Remarks.—The male of *N. wendyae* can be distinguished from the similar appearing *N. lamia* and *N. sponsor* by the form of the aedeagus (Fig. 5). The female is also similar to *N. sponsor* and can be separated by the blackish brown distal flagellomeres and white setae of the face.

Nemomydas fronki New Species
Fig. 6

Male.—Length 12.0–13.5 mm. Head shiny black, setae erect, black; antennae 3.3–3.5 mm long, black; proboscis short, 0.9 times as long as subcranial cavity, black. Thorax shiny black, setae black, long and erect; wing light brown, veins blackish brown; halter black; legs black, setae long, black. Abdominal tergites black, bulla black, setae black, long, erect on tergites 1–3, long, black, recumbent on tergites 4–7; sternites black, setae black.

Terminalia.—Black, dorsal digitate process of gonocoxite small, originating on in-

ner surface of ventral digitate process; aedeagus slender in lateral view (Fig. 6).

Female.—Length 13–14 mm. Head shiny black, setae short, erect, black; antennae 3.5–3.8 mm, black tinted with brown; proboscis short, 0.8 times as long as subcranial cavity, black. Scutum reddish brown, 3 faint black dorsal stripes, setae black, recumbent; wing light brown, darker brown tinting around blackish brown longitudinal veins; halter black; leg dark brownish black, setae black. Abdominal tergites 1–5 or 6 brownish orange, tergite 6 or 7 black, posterior margins of tergites 4–5 or 6 black, lateral margins of tergites 1–5 black, bulla black, setae very sparse, black, erect; sternites 1–7 blackish brown; terminalia black.

Material examined.—Holotype male, TEXAS: Kenedy Co., 5 mi. S. 10–15 mi. E of Sarita, 25 V 1979, H. E. Evans, A. Hook, W. Rubink. Paratypes: 2 males, 2 females, same data as holotype.

The holotype and one paratype female will be deposited in the CAS and the remaining specimens in the Colorado State University Insect Collection.

Eytomology.—We take great pleasure in naming this species for Dr. W. Don Fronk, Emeritus Professor of Entomology, Colorado State University. He has nurtured numerous students of entomology throughout his distinguished career.

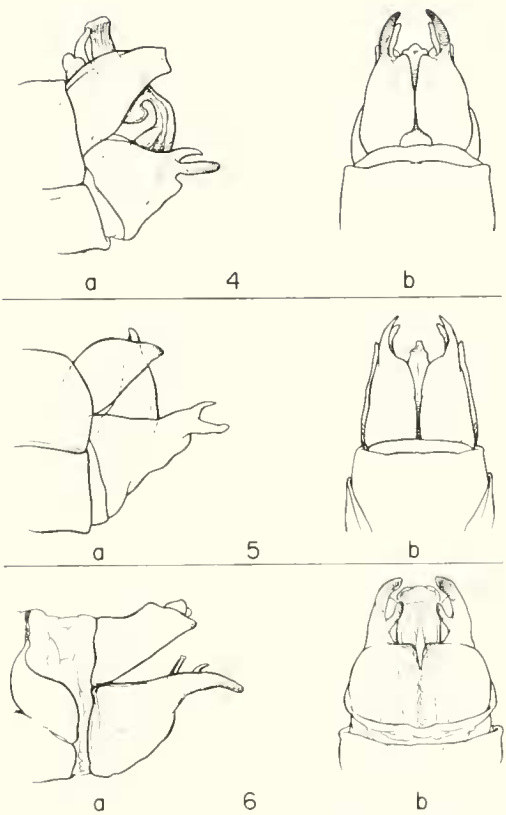
Remarks.—The male of *N. fronki* is easily distinguished from all other species by its totally black coloration (including all setae) and distinctive small dorsal digitate process of the gonocoxite (Fig. 6). The brownish orange abdominal tergites with black pleural margins easily separates the female from all other described females.

Nemomydas tenuipes (Loew)
Fig. 7

Midas tenuipes Loew, 1872: 61. Type locality: California. Holotype male (MCZ #10654), examined.

Leptomydas tenuipes, Johnson, 1926: 142.

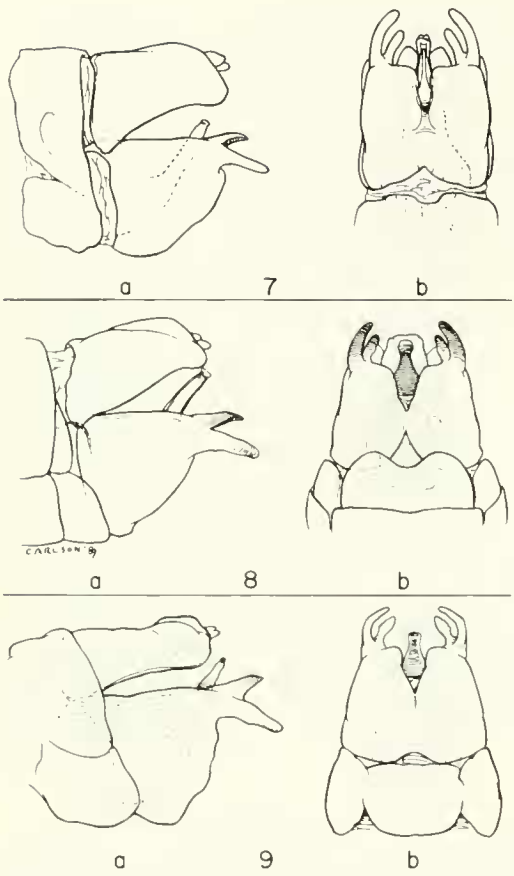
Nemomydas tenuipes, Hardy, 1950: 33.



Figs. 4–6. 4. *Nemomydas sponsor.* Male terminalia, a. lateral, b. ventral. 5. *Nemomydas wendyae,* n. sp. Male terminalia, a. lateral, b. ventral. 6. *Nemomydas fronki,* n. sp. Male terminalia, a. lateral, b. ventral.

Remarks.—Only the male is known and Hardy (1950) presented an excellent description. The abdomen ranges from black to reddish-black. *Nemomydas tenuipes* is readily distinguished from the only other black species, *N. fronki,* by dorsal digitate process of the gonocoxite originating at the base of the ventral digitate process of the gonocoxite (Fig. 7), yellow or white setae on the thorax and tergite 1, and its limited distribution (California and Mexico (Baja California)).

Material examined.—Holotype male, CALIFORNIA: Kern Co., Edwards (MCZ #10654); San Francisco, Presidio Park, 13 VI 1981, W. J. Pulawski, 1 male (CAS); San



Figs. 7–9. 7. *Nemomydas tenuipes*. Male terminalia, a. lateral, b. ventral. 8. *Nemomydas bifidus*. Male terminalia, a. lateral, b. ventral. 9. *Nemomydas intonsus*. Male terminalia, a. lateral, b. ventral.

Diego Co., Hot Springs Mountain Peak, 30 VI 1979, JWB, 1 male (SDNHM). MEXICO: Baja California (Norte), Vic. Fausino, San Juarez, 7 VI 1981, D. K. Faulkner and Brown, 1 male (SDNHM).

Nemomydas bifidus Hardy
Fig. 8

Nemomydas bifidus Hardy, 1950: 22. Type locality: California. Holotype male (CAS), examined.

This species is only known from the holotype male. It closely resembles *N. intonsus* and immaculate male variants (yellow brown tergites lacking the posterior transverse blackish brown bands) of *N. pantherinus*. It may be distinguished from *N. intonsus* by the black setae of the legs and abdomen, and from *N. pantherinus* by the longer proboscis (at least 1.3 times the length of the subcranial cavity) and the stouter aedeagus (Fig. 8). The lateral view of the terminalia illustrated by Hardy (1950, Fig. 5e) is not accurate.

Material examined.—Holotype male: CALIFORNIA: Riverside Co., Idyllwild, VI 1936, E. S. Ross (CAS).

Nemomydas intonsus Hardy
Fig. 9

Nemomydas intonsus Hardy, 1950: 27. Type locality: Pine Valley, California, Holotype male (UK), examined.

Remarks.—Hardy (1950) provides an excellent description of this rare species, known only from the types, and need not be repeated here. The proboscis is moderately developed, 1.3 times length of subcranial cavity.

Material examined.—Holotype male: CALIFORNIA: San Diego Co., Pine Valley, 27 VI 1938, L. W. Hepner (UK); allotype female, same data as holotype (UK).

Nemomydas fumosus Hardy, New Status
Fig. 10

Nemomydas intonsus fumosus Hardy, 1950: 29. Type locality: San Diego Co., California, Holotype male (UK), examined.

Hardy (1950) considered this species to be a variety of *N. intonsus*. It is considered here as a valid species, and can be separated from similar appearing relatives, *N. bifidus* and *N. intonsus* by the blackish brown femora, tergites brownish black with lateral triangular whitish spots on tergites 3–5. The proboscis is 1.6 times length of the subcranial cavity. The terminalia of *N. fumosus* and *N. intonsus* are very similar.

Material examined.—Holotype male, CALIFORNIA: San Diego Co., 7 VI 1929,

P. W. Oman; allotype female, same data as holotype.

Nemomydas pantherinus (Gerstaecker)
Fig. 11

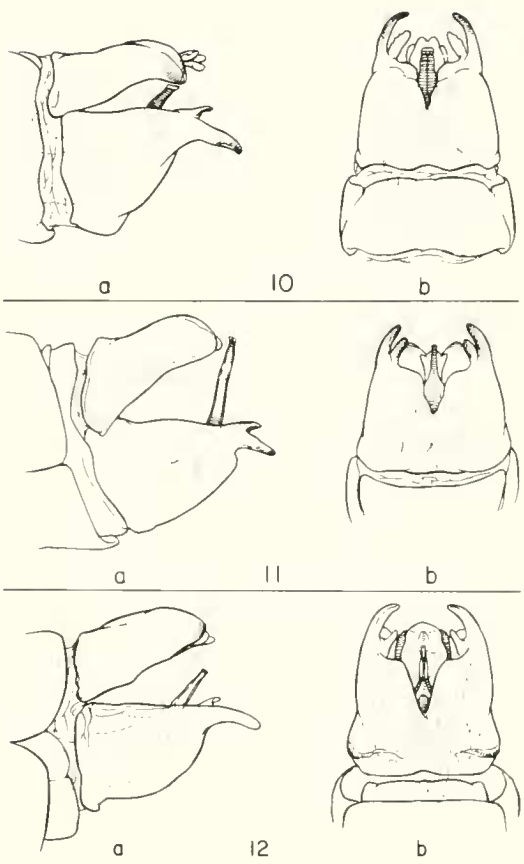
Leptomydas pantherinus Gerstaecker 1868: 85. Type locality: California. Holotype female (Humboldt-Universitat), not examined.

Leptomydas pantherinus, Johnson, 1926: 142.

Nemomydas pantherinus, Hardy, 1950: 30.

Remarks.—This relatively common and quite variable species can be distinguished from other far western, primarily yellow or yellow brown species (*N. intonsus* and *N. bifidus*) by the short proboscis, 0.8–0.9 times as long as subcranial cavity.

Material examined.—CANADA: British Columbia, Oliver, 22 July 1923, P. N. Vroon, 2 males, 4 females (CNC). MEXICO: Baja California Sur, 3 mi NE San Isidro (La Purisima), 2 IV 1985, Bloomfield and D. K. Faulkner, 1 female (SDNHM); Santo Domingo River, 3–4 VIII 1979, Brown and D. K. Faulkner, 1 male (SDNHM); same except Santo Domingo (ruins), 1 male (SDNHM). UNITED STATES, CALIFORNIA: Humboldt Co., Strong Std., 14 VIII 1938, B. P. Bliven, 1 female (CAS); Van Duzen River, 19 VII 1936, B. P. Bliven, 5 males, 5 females (CAS); Inyo Co., Hoton Creek Campground, Hwy 395, 4 VII 1981, R. M. Brown, 1 female (CAS); Los Angeles Co., N. Long Beach, 5 VIII 1938, A. Mallis, 1 female (CAS); Orange Co., Irvine, 23 VIII 1960, D. Magoi, 1 male (CAS); Santa Ana, 10 VIII 1964, J. Wilcox, 1 female (CAS); Riverside Co., Herkey Creek, San Jacinto Mtns., 20 VI 1940, 1 male (CAS); Temecula, 30 VI 1956, J. Wilcox, 1 male, 1 female (CAS); Temecula, 4 VII 1950, J. W. MacSwain, 2 males (CNC); San Bernardino Co., Barstow, 24 VI 1914, J. R. Haskin, 1 female (CAS); El Cajon, 2 VII 1974, 1 female, 1 male (CAS); San Bernardino, 2 IX 1895, W. G. Wright, 1 female (CAS); Victorville, 2.5 mi. NW at Mojave,



Figs. 10–12. 10. *Nemomydas fumosus*. Male terminalia, a. lateral, b. ventral. 11. *Nemomydas pantherinus*. Male terminalia, a. lateral, b. ventral. 12. *Nemomydas solitarius*. Male terminalia, a. lateral, b. ventral.

9 VIII 1983, D. Williams, 1 female (CAS); nr. Wrightwood, 21 VII 1954, F. M. Hull, 1 female (CNC); San Diego Co., Bordenfieldis Bay, 6 VIII 1982, B. Parks, 1 female (SDNHM); Lakeside, 20 VII 1965, J. Heppner, 1 male (FSCA); Mission Gorge (dam), 15 VII 1978, L. Guidry, 4 males (SDNHM); San Diego, 16 IX 1890, F. E. Blaisdell, 2 males, 1 female (CAS); San Diego, 2–5 VIII 1954, H. E. and M. A. Evans, 1 male, 1 female (CAS); San Diego, 12–13 VII, W. S. Wright, 2 males, 1 female (CAS); Tulare Co., Porterville, 6 VIII 1959, E. Ball, 1 male (FSCA); same but 25 VII 1957, 1 female (FSCA); Springville, 25 VII 1957, E.

Ball 1 female (FSCA); Ventura Co., Foster Park, 1 VII 1959, J. L. Bath, 2 males, 1 female (CAS).

Nemomydas solitarius (Johnson)
Fig. 12

Leptomydas solitarius Johnson, 1926: 142. Type locality, Colorado, Holotype male (MCZ #7391), examined.
Nemomydas solitarius, Hardy, 1950: 32.

Hardy (1950) suggested that this species ". . . may possibly be the same . . ." as *N. pantherinus*. *Nemomydas solitarius* is known only from the holotype male, apparently collected in "Col" with no further data. Despite extensive collecting in Colorado, no additional specimens have been collected for study. It is more similar to *N. bifidus*, *N. intonsus*, and *N. fumosus* than *N. pantherinus*, and can be distinguished from these species by the dorsal digitate process of the gonocoxite originating on the inner face of the ventral process (Fig. 12).

The proboscis is missing from the holotype. Johnson's (1926) description omitted any reference to the relative length of this structure. Hardy (1950) evidently considered the ". . . mouthparts conspicuously short, scarcely, if at all, extended beyond the oral margin . . ."

Material examined.—COLORADO: Holotype male (MCZ #7391).

Nemomydas venosus (Loew)
Fig. 13

Midas venosa Loew, 1866: 15. Type locality: Texas. Holotype male (MCZ #10653), examined.
Leptomydas venosus, Johnson, 1926: 142.
Nemomydas venosus, Hardy, 1950: 34.

Remarks.—The large thumb-like ventral process of the gonocoxite (Fig. 13) easily distinguishes the male of this widespread species. There are both light and dark phases of both sexes, especially with females. Pairs taken in copula have been mixed. Many of the past misidentifications, especially for *N. brachyrhynchus* and *N. pantherinus* (see Curran (1965)), have been due to this color variability. The light form of the female may be confused for these two species and characters of separation are given under *N. brachyrhynchus*. The dark form cannot be confused with any other species.

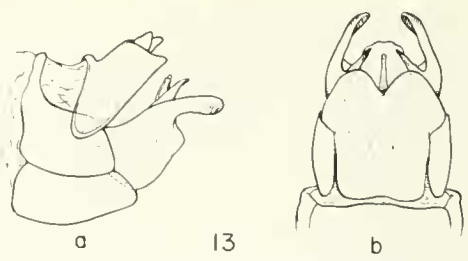
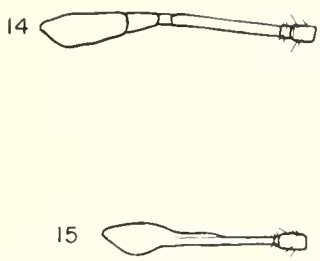


Fig. 13. *Nemomydas venosus*. Male terminalia, a. lateral, b. ventral.

Material examined.—MEXICO: Chihuahua, 6 mi. S. Villa Matamoros, 21 VII 1967, R. C. Gardner, C. R. Kovacic, K. Lorenzen, 2 males, 2 females (CAS); Sinaloa, Baviri (playa) W Los Mochis, 9 IX 1986, D. K. Faulkner, Bloomfield, 1 male (SDNHM); Sonora, La Aduana, W. of Alamosa, 18 VIII 1964, T. E. Irwin, 1 male (CAS). UNITED STATES, ARIZONA: Cochise Co., Chiricahua Natl. Mon., 11 VIII 1962, J. Wilcox, 1 male (CAS); 3 mi. NE Coronado Natl. Mon., 17 VIII 1966, R. L. Westcott, 1 female, 1 male (CAS); 8 mi. E Douglas, 4 VIII 1958, R. M. Bohart, 1 female (CAS); same except 8 VIII 1964, P. M. Marsh, 1 male; Montezuma Canyon, Huachuca Mtns., 19 VIII 1968, G. R. Ballmer, 1 female (CAS); Wilcox Dry Lake, 25 VIII 1967, F. G. Andrews, 1 male 3 females (CAS); same except E. I. Schlinger, 1 female 1 male (CAS); same except D. J. Culver, 1 male (CAS); Coconino Co., Oak Creek Canyon, 15 VI 1936, G. P. Engelhardt, 1 male (CAS); Gila Co., Globe, D. K. Duncan, 1 female (CSU); Pima Co., Florida Wash, 21 VIII 1979, D. K. Faulkner, 3 males (SDNHM). COLORADO: Phillips Co., Holyoke, 26 VII 1946, M. T. James, 1 male (CSU); Weld Co., Roggen, 21 VIII 1976, H. E. Evans, 1 male



Figs. 14, 15. *Nemomydas bequaerti*. Antenna. 15. *Nemomydas brachyrhynchus*. Antenna.

(CSU); same except 24 VIII 1976, 2 males; same except 4 VIII. 1977, 1 male; same except 17 VIII 1982, 5 males, 4 females; Roggen, 8 IX 1933, M. T. James, 1 male (CSU); same except 31 VIII 1938, 9 males, 5 females; same except 15–18 VIII 1941, 1 male, 1 female; KANSAS, Kearny Co., Lakin, 28 VIII 1951, R. R. Dreishbach, 1 male (UCB); NEW MEXICO, Chaves Co., 14 VIII 1955, R. R. Dreisbach, 1 male (MSU); Grant Co., 29 VIII 1935, R. T. Kellogg, 3 males (CAS); Silver City, 14 IX 1935, B. T. Kellogg, 1 male, 1 female (CAS). TEXAS: Holotype male, Texas (MCZ #10653, terminalia missing); Jeff Davis Co., 24 mi. NW Ft. Davis, 24 XI 1965, R. W. Thorp, 1 female (CAS); Kleberg Co., 20 mi. SE Kingsville, 1 V 1985, W. J. Pulawski, 1 male (CAS); Riviera Beach, 28 V 1979, H. Evans, A. Hook, W. Rubink, 1 M (CSU).

Nemomydas panamensis (Curran), *nomen dubium*

Nomoneura panamensis Curran, 1934: 165. Type locality: Panama, Canal Zone, Bruja Point.

Nemomydas panamensis, Papavero and Wilcox, 1968: 34.11.

Curran (1934) never published a formal description for this name, and illustrated only the head. Papavero and Wilcox (1968) considered the name available (authors cited Article 16 (vii) (1964 Code). However, this name was published in 1934, therefore does not satisfy Article 13 (1985 Code). An attempt was made to locate the two males referred to by Papavero and Wilcox (1968). Curran was at the CNC from 1923 to 1928 and from 1928, to 1960 at the AMNH. Curators of these museums (D. Grimaldi, AMNH) and B. E. Cooper, CNC) could not locate these two specimens in their respective collections. We therefore consider this name as a *nomen dubium*.

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